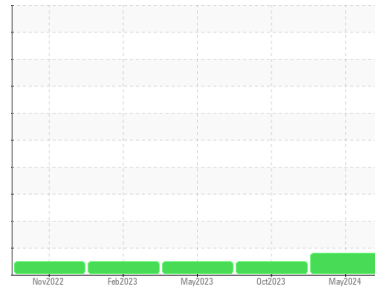




OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Machine Id
HAMMEL 950 HAMMEL 950
 Component
Hydraulic System
 Fluid
AW HYDRAULIC OIL ISO 46 (--- GAL)

DIAGNOSIS

Recommendation

The filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a light amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PTK0005551	PTK0004646	PTK0004651
Sample Date	Client Info			02 May 2024	04 Oct 2023	23 May 2023
Machine Age	hrs	Client Info		3362	2000	1251
Oil Age	hrs	Client Info		0	0	1251
Oil Changed	Client Info			Changed	N/A	Not Changd
Sample Status				ATTENTION	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.1	NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>20	2	2	3
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m	>10	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>10	0	0	0
Lead	ppm	ASTM D5185m	>10	0	0	<1
Copper	ppm	ASTM D5185m	>75	<1	<1	1
Tin	ppm	ASTM D5185m	>10	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	5	0	0	0
Barium	ppm	ASTM D5185m	5	0	2	0
Molybdenum	ppm	ASTM D5185m	5	<1	<1	1
Manganese	ppm	ASTM D5185m		0	0	0
Magnesium	ppm	ASTM D5185m	25	4	6	7
Calcium	ppm	ASTM D5185m	200	199	46	65
Phosphorus	ppm	ASTM D5185m	300	369	335	333
Zinc	ppm	ASTM D5185m	370	457	395	425
Sulfur	ppm	ASTM D5185m	2500	1433	1338	2188

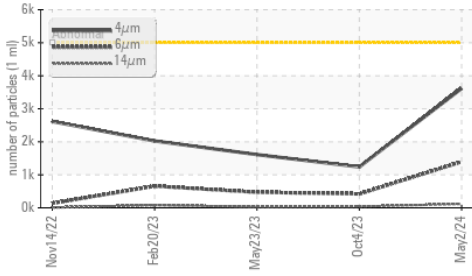
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	2	4	8
Sodium	ppm	ASTM D5185m		0	<1	0
Potassium	ppm	ASTM D5185m	>20	0	0	<1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	3616	1239	1612
Particles >6µm		ASTM D7647	>1300	1397	421	471
Particles >14µm		ASTM D7647	>160	117	36	27
Particles >21µm		ASTM D7647	>40	22	7	6
Particles >38µm		ASTM D7647	>10	0	0	0
Particles >71µm		ASTM D7647	>3	0	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	19/18/14	17/16/12	18/16/12

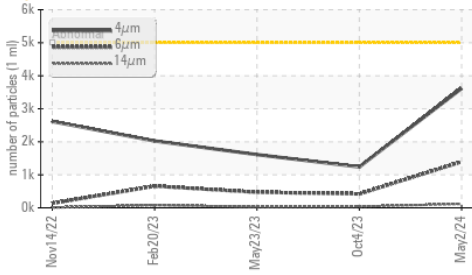
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	0.57	0.29	0.48	0.37

OIL ANALYSIS REPORT

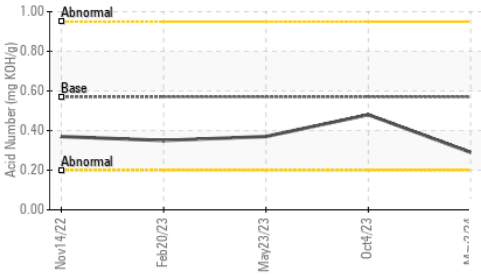
Particle Trend



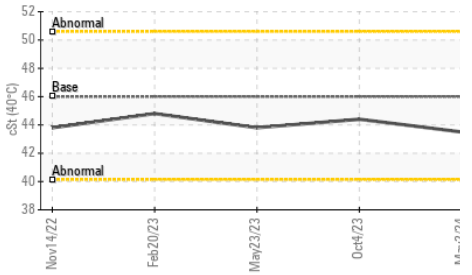
Particle Trend



Acid Number



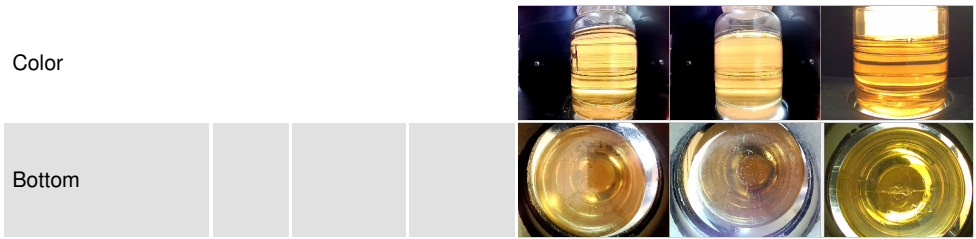
Viscosity @ 40°C



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

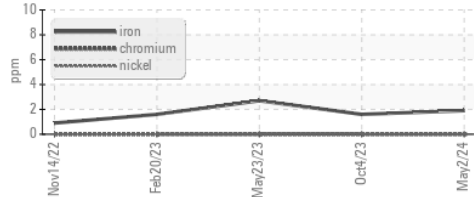
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445 46	43.5	44.4	43.8

SAMPLE IMAGES	method	limit/base	current	history1	history2
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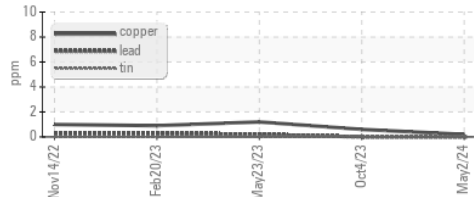


GRAPHS

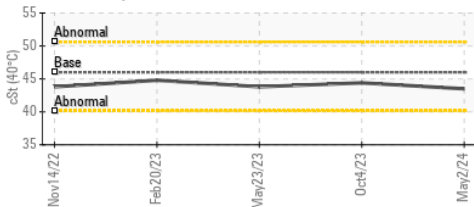
Ferrous Alloys



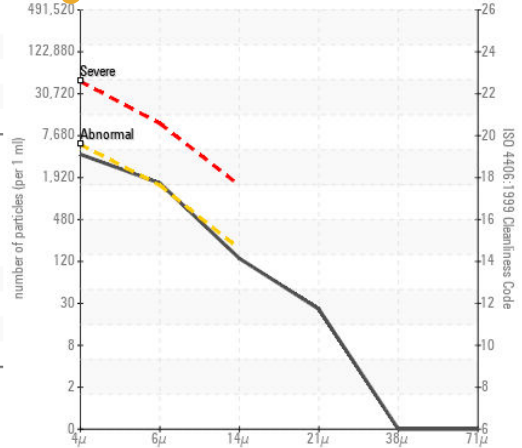
Non-ferrous Metals



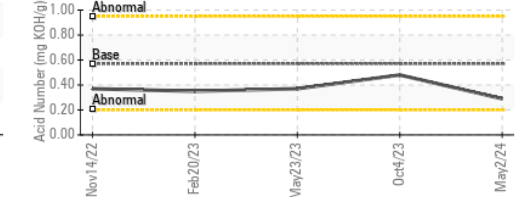
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PTK0005551 **Received** : 20 May 2024
Lab Number : 06184259 **Tested** : 21 May 2024
Unique Number : 11035585 **Diagnosed** : 21 May 2024 - Wes Davis
Test Package : MOB 2

SPIEGEL SCRAP
 212 N CARY ST
 BROCKTON, MA
 US 02302
 Contact: Service Manager

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)